RECEIVED
JAN 30 2009
DEQ/WPB
PERMITTING & COMPLIANCE DIV.

Montana Department of Environmental Quality

WATER PROTECTION BUREAU

| Agency Use | |
|---|---|
| Permit No.: | MTG010134 |
| Date Rec'd | 1/30/09 |
| Amount Rec'd | 0 |
| Check No. | |
| Rec'd By | bs |

FORM
**NMP**

# Nutrient Management Plan

**READ THIS BEFORE COMPLETING FORM:** Before completing this form (Form NMP), Concentrated Animal Feeding Operation (CAFO) operators need to read the General Permit, particularly Part IV.A. CAFO operators also need to read the "Instructions For Filling Out Form NMP," found at the back of the Form. Form NMP is intended to help CAFO operators develop a site-specific Nutrient Management Plan, in compliance with Part IV.A of the General Permit and all applicable State rules and statutes. Your Nutrient Management Plan must be maintained at the site as required in Part III of the General Permit. Sections B and C on your Form NMP must state the information exactly the same way as it was stated on the most recently submitted version of your Form 2B. Attach additional pages as necessary, indicating the corresponding section number on this NMP form. For additional help in filling out this form please read the attached instructions. The 2008 General Permit, current fee schedule, and related forms are available from the Water Protection Bureau at (406) 444-3080 or http://www.deq.mt.gov/wqinfo/MPDES/CAFO.asp

**Section A - NMP Status** *(Check one):*

■ New — No prior NMP submitted for this site.

Modification — Change or update to existing NMP.

Permit Number: MT G010124 (Specify the permit number that was previously assigned to your facility.)

**Section B - Facility or Site Information:**

Site Name Harding Land & Cattle Co. inc

Site Location NW 20 - Twp 11N - Rng 50E

Nearest City or Town Terry County Prairie

**Section C - Applicant (Owner/Operator) Information:**

Owner or Operator Name Harding Land & Cattle Co. inc

Mailing Address P.O. Box 905

City, State, and Zip Code Terry, Mt. 59349

Phone Number 406-635-5788

**Section D - NMP Minimum Elements:**

**1. Livestock Statistics**

| *Animal Type and number of animals* | *# of Days on Site (per year)* | *Annual Manure Production (tons, cu. yds.or gal)* |
|---|---|---|
| 1. Calf (Beef), 1200 | 100 | 3,510 tons |
| 2. Finishing (Beef) 1200 | 50 | 1,365 tons |
| 3. Cow (Beef) 200 | 100 | 920 tons |
| 4. Replacement heifers (200) | 150 | 1,035 tons |
| 5. Replacement Bulls (50) | 60 | 103 tons |
| 6. | | |
| 7. | | |
| 8. | | |

Method used for estimating annual manure production:

From DEQ 9, average manure production for weight ranges, multiplied by number of animals and number of days, divided by 2000 lbs/ton

Heifers & bulls on high roughage ration, used 69 #/day manure production

**2. Manure Handling**

Describe manure handling at the facility:

Manure mounded in pens during confinement period.

Frequency of Manure Removal from confinement areas:

Manure hauled to adjacent pile in fall before cattle arrival. Manure spread to fields from pile on alternate years.

Is this manure temporarily stored in any location other than the confinement area? ☑ Yes ☐ No

If so then how and where? Piled adjacent to confinement area, in area protected by clean water diversion. Any runoff is diverted to evaporation ponds.

Soils under pile are Prairie County 73- Kobar Silty Clay.

Is manure stored on impervious surface? ☑ Yes ☐ No

If yes, describe type and characteristics of this surface:

Kobar silty Clay has a clay content of 30% - 40%, infiltration is very limited, This area was packed with construction equipment during construction of diversion and evap. ponds.

**3. Waste Control Structures**

| *Waste Control Structure (name/type)* | *Length (ft)* | *Width (ft)* | *Depth (ft)* | *Volume (cubic ft or gallons)* |
|---|---|---|---|---|
| 1. Clean Water Diversion | 500 | 3 ft top | 1.5 ft | |
| 2. Pond 1 | 283 | 85 | 1.5 ft | 36,082 cubic feet |
| 3. Pond 2 | 288 | 90 | 1.4 | 36,288 cu ft |
| 4. Pond 3 | 160 | 92 | 1.3 | 19,136 cu ft |
| 5. Pond 4 | 720 | 99 | 0.9 | 64,152 cu ft |
| 6. | | | | |
| 7. | | | | |
| 8. | | | | |
| 9. | | | | |
| 10. | | | | |
| 11. | | | | |
| 12. | | | | |

**4. Disposal of Dead Animals**

Describe how dead animals are disposed of at this facility:

Animals hauled to certified landfill in Miles City.

**5. Clean Water Diversion Practices**

Describe how clean water is diverted from production area:

A 3 ft. top witdth X 1.5 ft high diversion was constructed around the confinement area, feed storage and manure storage area. No outside runoff enters the confinement area.

**6. Prohibiting Animals and Wastes from Contact with State Waters**

Describe how animals and wastes are prohibited from direct contact with state waters:

No streams are near the confinement area. 5 ft. high board fence separates confinement area from evaporation ponds, and manure storage area.

Describe how chemicals and other contaminants are handled on-site:

No chemicals used in confinement area.

**8. Best Management Practice (BMPS)**

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's **production area**. Indicate the location of these measures. Include a schedule for implementation of each of these measures. Examples of BMP measures could include but are not limited to: constructing ditches, terraces, and waterways above an open lot to divert clean water run on; installing gutters, downspouts and buried conduits to divert roof drainage; providing more roofed area; decreasing open lot surface area; repairing or adjusting water systems to minimize water wastage; using practical amounts of water for cooling purposes; recycling water if practical and applicable.

A clean water diversion was described in section 5 and is currently in use. Production area was graded to drain all run off from the production area to the evaporation ponds.

Describe in detail all temporary, permanent and structural Best Management Practices (BMPs) which will be used to control runoff of pollutants from facility's **land application area**. Indicate the location of these practices. If not already in use, include a schedule for implementation of each of these measures. Attached details and specifications may be used to supplement this description. Examples of BMP measures could include but are not limited to: maintaining setbacks from surface waters for manure applications; managing irrigation practices to prevent ponding of wastewater on land application sites; never spray irrigating wastes onto frozen ground; consulting with the Department prior to applying any liquid waste to frozen or snow-covered ground; applying wastes at agronomic rates.

| | | | |
|---|---|---|---|
| Plant sampling/tissue analysis | yes/no ✓ | Rotational grazing | ✓ yes/no |
| Conservation or reduced tillage | ✓ yes/no | Manure injection or incorporation | ✓ yes/no |
| Terraces or other water control structures | yes/no ✓ | Contour plantings | yes/no ✓ |
| Riparian buffers or vegetative filter strips | ✓ yes/no | Winter "scavenger" or cover crops | yes/no ✓ |

Other examples Soil and manure nutrient analysis, Irrigation water management

**9. Implementation, Operation, Maintenance and Record Keeping – Guidance**

The permittee is required to develop guidance addressing implementation of NMP, proper operation and maintenance of the facility, and record keeping as described in Part II of the permit.

Has a guidance document been developed for the facility? ✓ Yes No

Certify the document addresses the following requirements:

| | | |
|---|---|---|
| Implementation of the NMP: | ✓ Yes | No |
| Facility operation and maintenance: | ✓ Yes | No |
| Record keeping and reporting: | ✓ Yes | No |
| Sample collection and analysis: | ✓ Yes | No |
| Manure transfer: | ✓ Yes | No |

Provide name, date and location of most recent documentation:

Refer to NRCS CNMP 5/2007.

If your answer to any of the above question is no, provide explanation

**Section E – Land Application**

Will manure be land applied to land either owned, rented, or leased by the owner or operator of the facility?

No If no, then provide an explanation of how animal waste at this site are managed.

Yes If yes, then the information requested in Section E must be provided.

**Photos and/or Maps**

Attach an aerial photograph or map of the site where manure is to be applied. (Use multiple photos/maps if necessary to show required details.) The photo(s)/map(s) must be printed on no larger than an 11"x17" piece of paper, and must clearly identify the following items:

- Individual field boundaries for all planned land application areas
- A name, number, letter or other means of identifying each individual land application field
- The location of any down-gradient surface waters
- The location of any down-gradient open tile line intake structures
- The location of any down-gradient sinkholes
- The location of any down-gradient agricultural well heads
- The location of all conduits to surface waters
- The specific manure/waste handling or nutrient management restrictions associated with each land application field.
- The soil type(s) present and their locations within the individual land application field(s)
- The location of buffers and setbacks around state surface waters, well heads, etc.

**Land Application Equipment Calibration**

Describe the type of equipment used to land apply wastes and the calibrating procedures:

Solid manure spreader, catch and weigh calibration method

**Manure Sampling and Analysis Procedures**

A representative manure sample will be analyzed a minimum of once annually for Total Nitrogen, and Total Phosphorus. Analysis results will be reported in lbs/ton or lbs/1,000 gal. Results of these analyses will be used in determining application rates for manure, litter, and process wastewater.

Manure Sample collection will occur according to the following method:

■ The recommended method(s) found in Section 5 of Department Circular DEQ 9

Other (describe) _____

**Soil Sampling and Analysis Procedures**

A representative soil sample from the top 6 inch layer of soil in each field will be analyzed for phosphorus content at least once every five years. Analyses will be conducted by a qualified laboratory, using the Olsen P test. Results will be reported in parts per million (ppm) and will be used in determining application rates for manure, litter, and process wastewater.

Soil sample collection will occur according to the following method:

■ The recommended method(s) found in Section 5 of Department Circular DEQ 9

Other (describe) Fields that receive manure are sampled prior to application.

**Land Application Data-Narrative approach**

The following must be filled out for each field to which manure, litter or process wastewater will or may be applied for the period of the permit (5 years). Use as many sheets as necessary to fulfill this requirement. **Fields with identical crops and soil types may be grouped together.**

| **Crops and Manure** | |
|---|---|
| **Field Name and spreadable acres for each (for fields with identical crops and soils type):** | 7,8,10,11,13,15,16,2 Fields in the corn rotation |
| ***Crop 1 (year 1 or ?) plant species*** | |
| Irrigated (Y/N) | Yes |
| Yield Goal (ton/ac or bushel/ac) | 20 tons |
| N Content of soil as nitrate (lbs/acre or ppm) | 3- 9 ppm |
| P Content of soil as $P_2O_5$ (lbs/acre or ppm) | 18-36 ppm |
| Time of Year When Application will Occur (month) | September |
| Application frequency (per year by month) | 1 month/year |
| Form of manure (liquid/solid) | soild |
| Method of Application | broadcast, disk |
| Is manure incorporated or broadcast? | Yes, within 3 days |
| Frequency of Application (yearly, biannual, etc.?) | biannual |
| ***Crop 2*** | |
| Irrigated (Y/N) | |
| Yield Goal (ton/ac or bushel/ac) | |
| N Content of soil as Nitrate (lbs/acre or ppm) | |
| P Content of soil as $P_2O_5$ (lbs/acre or ppm) | |
| Time of Year When Application will Occur (month) | |
| Application frequency (per year, by month) | |
| Form of manure (liquid/solid) | |
| Method of Application | |
| Is manure broadcast, injected or incorporated? | |
| Frequency of Application (Annual, Biannual, ,etc?) | |

**Phosphorus Risk Assessment**

The permittee shall assess the risk of phosphorus contamination of state waters. An assessment shall be conducted for each field, under the control of the operator, to which manure, litter or process wastewater will or may be applied. If a new field is added in the future, then the permittee must submit a revised (modified) NMP. The permittee has the option of using either Method A or Method B (below) to complete the assessment. Copies of all tables and calculations used to complete the assessments, as well as the results of the assessments, shall be submitted to the Department and copies shall be maintained on-site at the facility and available for Departmental review. The results of the assessments shall be used to determine the appropriate basis for land application of wastes from the facility.

**Method Used**

Indicate which method will be used to determine phosphorus application:

■ Method A – Representative Soil Sample
Method B – Phosphorus Index

***Method A – Representative Soil Sample***

a) Obtain one or more representative soil sample(s) from the field.
b) Have the sample analyzed for Phosphorus by a qualified lab. The "Olsen P test" must be used for the analysis, and the result must be reported in parts per million (ppm).
c) Using the results of the Olsen P test, determine the application basis according to the Table below

| Soil Test | |
|---|---|
| ***Olsen P Soil Test Result (ppm)*** | ***Application Basis*** |
| <25.0 | Nitrogen Needs Of Crop |
| X 25.1 - 100.0 | Phosphorus Needs Of Crop |
| 100.0 - 150.0 | Phosphorus Needs up to Crop Removal Rate |
| >150.0 | No Application |

***Method B – Phosphorus Index***

a) Complete a Phosphorus Index according to for each crop grown on each field. Complete table in Appendix A to calculate phosphorus index. For information on filling out specific sections Appendix A, please refer to Attachment 2 of Department Circular DEQ 9.
b) Using the calculated Total Phosphorus Index Value, assign the overall site/field vulnerability to phosphorus loss according to the table below.

| Total Phosphorus | |
|---|---|
| ***Total Phosphorus Index Value*** | ***Site Vulnerability to Phosphorus Loss*** |
| <11 | Low |
| 11-21 | Medium |
| 22-43 | High |
| >43 | Very High |
| | |

c) Using the calculated Site Vulnerability to Phosphorus Loss, determine the appropriate application basis according to the table below.

| Site Vulnerability to Phosphorus Loss | |
|---|---|
| ***Site Vulnerability to Phosphorus Loss*** | ***Application Basis*** |
| Low | Nitrogen Needs |
| Medium | Nitrogen Needs |
| High | Phosphorus Need Up to Crop Removal |
| Very High | Phosphorus Crop Removal or No Application |

d) The permittee will complete the *Nutrient Budget Worksheet*, below, for each crop grown on each field to which manure or process waste water is or may be applied during the first year of application. A copy of each Nutrient Budget Worksheet will be maintained on site, and a copy will be submitted to the Department.

**Nutrient Budget Worksheet**

***Site/Field:***

| | ***Nutrient Budget*** | ***Nitrogen-based Application*** | ***Phosphorus-based Application*** |
|---|---|---|---|
| | Crop Nutrient Needs, lbs/acre included in Department Circular DEQ 9 | | 8.8 x 20=176lbs.ac. |
| (-) | Credits from previous legume crops, lbs/acre (from DEQ-9), as applicable | | 0 |
| (-) | Residuals from past manure production, lbs/acre (lbs/acre applied in previous year(s) x fractions listed in DEQ-9) | | 69 / 2 = 35 |
| (-) | Nutrients supplied by commercial fertilizer and Biosolids, lbs/acre | | 0 |
| (-) | Nutrients supplied in irrigation water, lbs/acre | | 0 |
| | **= Additional Nutrients Needed, lbs/acre** | | 141 |
| | | | |
| | Total Nitrogen and Phosphorus in manure, lbs/ton or lbs/1,000 gal (from manure test) | | 29lbs/ton |
| (x) | Nutrient Avalability factor (for Nitrogen based application see DEQ-9, below; for Phosphorus based application use 1.0) | | 1 |
| | **= Available Nutrients in Manure, lbs/ton or lbs/1,000 gal** | | 29lbs/ton |
| | | | |
| | Additional Nutrients needed, lbs/acre (calculated above) | | 141 |
| (/) | Available Nutrients in Manure, lbs/ton or lbs/1,000 gal (calculated above) | | 29lbs/ton |
| | **= Manure Application Rate, tons/acre or 1,000 gal/acre** | | 4.9 ton |

Comments:

Fields to receive manure will have soil test before application.

Manure from pile and pens will be sampled individually prior to spreading.

## Section F - CERTIFICATION

**Permittee Information:**

This Form NMP must be completed, signed, and certified as follows:

- For a corporation, by a principal officer of at least the level of vice president;
- For a partnership or sole proprietorship, by a general partner or the proprietor, respectively; or
- For a municipality, state, federal, or other public facility, by either a principal executive officer or ranking elected official.

**All Permittees Must Complete the Following Certification:**

I certify under penalty of law that this document and all attachments were prepared under my direction or supervision in accordance with a system designed to assure that qualified personnel properly gather and evaluate the information submitted. Based on my inquiry of the persons who manage the system, or those persons directly responsible for gathering the information, the information submitted is, to the best of my knowledge and belief, true, accurate, and complete. I am aware that there are significant penalties for submitting false information; including the possibility of fine and imprisonment for knowing violations. [75-5-633, MCA]

**A. Name (Type or Print)**

Jeffrey A. Harding

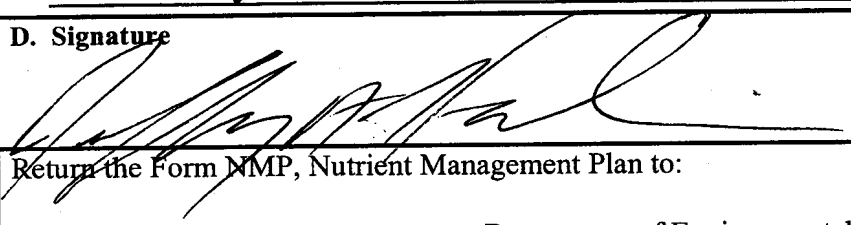
**B. Title (Type or Print)**

Secretary/treasurer

**C. Phone No.**

406-635-5788

**D. Signature**



**E. Date Signed**

01-28-09

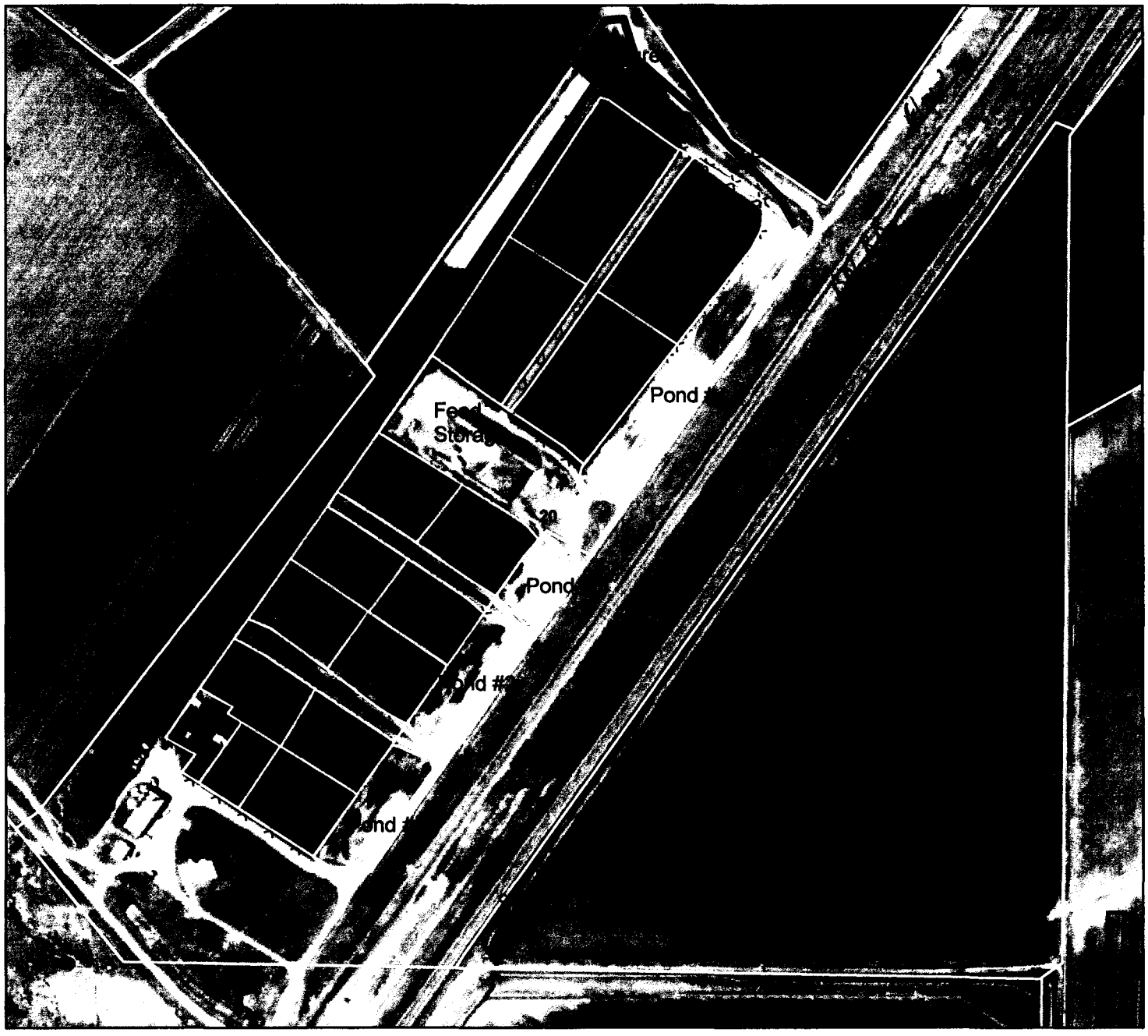
Return the Form NMP, Nutrient Management Plan to:

Department of Environmental Quality
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901
(406) 444-3080

# Topographic Map

Date: 12/4/2007

Customer(s): HARDING LAND & CATTLE CO INC




**Legend**

- Diversion
- CAFO_Plan
- Resource Inventory (Lines)
- plss_a_mt079

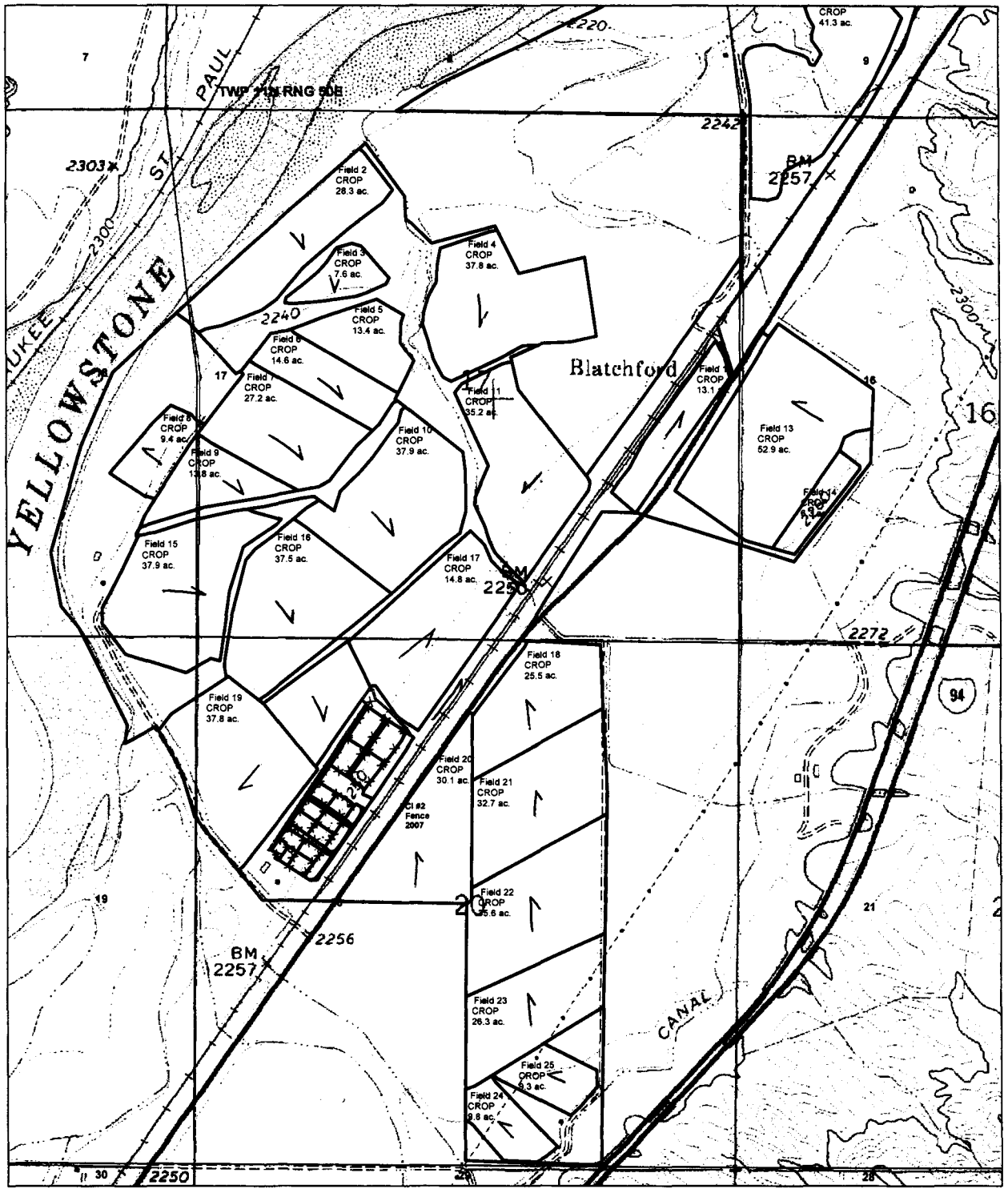
200 0 200 400 600 800 Feet

N

# Topographic Map

Date: 12/4/2007

Customer(s): HARDING LAND & CATTLE CO INC




## Legend

**Practice name**

- Diversion
- CAFO_Plan
- Resource Inventory (Lines)
- plss_a_mt079

950 0 950 1,900 2,850 3,800 Feet

N

# Soil Map

Date: 12/4/2007

Customer(s): HARDING LAND & CATTLE CO INC


## Legend

**Practice name**

- Diversion
- CAFO_Plan
- Resource Inventory (Lines)
- Soils Map Prairie Co
- plss_a_mt079

975 0 975 1,950 2,925 3,900 Feet

N

# CONSERVATION PLAN MAP

Date: 12/4/2007

Customer(s): HARDING LAND & CATTLE CO INC


## Legend

**Practice name**

- Diversion
- CAFO_Plan
- Resource Inventory (Lines)
- piss_a_mt079

980 0 980 1,960 2,940 3,920 Feet

N